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Interest Patterns for Four Occupations: Kuder Preference Record

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INTEREST PATTERNS FOR FOUR OCCUPATIONS: KUDER PREFERENCE RECORD

by

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Barbara Swensen Baer

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The problems of personnel placement and vocational choice at some time concern nearly everyone, as the employer or as the employee. Many people drift into their occupations, others shift from one wrong choice to another, while a large number are defeated by the struggle for success in an occupation for which they are not fitted. The mere placement of a worker on a job does not guarantee job success or interest in that job. In many cases no consideration is made of interests, general abilities, or special aptitudes, and even with a perfect diagnosis of these factors vocational choice still presents a problem.

As early as World War I psychological tests were being used by the United States Army as a means of aiding in the placement of army personnel. Since that time much has been written about tests, their development, application, and usefulness, but industry has been slow to adopt testing in the placement of their personnel. As late as 1940 one investigator found only eight companies which were making systematic and extensive use of tests in the selection of employees. Data are not available to give an accurate picture, but it appears that many companies adopted testing programs during World War II. In 1942 Drake (6) attempted to bring to the attention of management the importance and value of testing programs in personnel selection when he wrote:

> Management has made rapid strides in the improvement of machines and processes and in the development of instruments

> for their control. Far less success has attended its efforts in dealing with the human beings working within the industrial structure. Only recently has the human factor been recognized as measurable and predictable within reasonable limits. All science involves measurement, and the weakness of management when it deals with the human factor lies in the inadequacy of its techniques of measurement.

The importance of interest preference in job selection must be considered by both employee and employer. Although too general to be perfect indicators of vocational choice, vocational interests show personality traits which have significance for vocational success and satisfaction. Generally interests are organized somewhat and are expressed in tendencies toward selective types of response. Such interests are related to abilities, to inherent characteristics, and to stable habits; further, they manifest individuality. Insofar as a person's individuality is a factor affecting his success and happiness in his occupation, such interests are important in vocational choice.

Attempting to predict occupational success is a complex task. Occupational success is only poorly predicted by interest test scores - or by any other means. Vocational success is difficult to judge and degrees of success are difficult to measure because of the varied goals and objectives of those who work.

There are many vocational or occupational interest inventories in use at the present time. The Kuder Preference Record, which was used in this study, is intended for use in pointing out vocations with which a person may not be familiar but which involve activities of the type for which he has expressed preference, and checking on whether a person's choice of an occupation is consistent with the type of thing he ordinarily prefers to do. It is also intended for employee counseling, especially in improving the placement of employees.

The results of interest inventories are not intended to definitely name the occupation for which the individual is certainly best adapted, since ability is not measured by interest tests. They indicate, rather, the similarity between an individual and some particular occupational group in respect to the characteristic pattern of interests. Frandsen (9) feels that "something about a person is measured quite reliably by interest inventories," but that interest inventories correlate negligibly with achievement, aptitudes, and possibly with curriculum satisfaction.

There is considerable overlapping when one tries to classify occupations on the basis of interest test scores alone. Lawshe (16) suggests that an occupational classification system based upon a combination of intelligence and interest test scores has real possibilities. A single test is insufficient and a battery of tests measuring a number of human factors would be necessary to develop a suitable occupational classification scheme based on measured human traits alone. Such a scheme would have great usefulness.

Bingham, as quoted by Ross (19), is of the opinion that interest inventories are of value in helping the individual to self-insight but he cautions that:

> Self-knowledge is a gradual growth. To gain a clear understanding of one's aptitudes is an achievement of years rather than of hours. As aids to self-understanding, scientifically constructed tests of attitudes are not a substitute for insight and common sense. They may, however, serve to supplement or modify the considered judgement of a counselor who combines and weighs all the facts, from the personal history and the personal interview as well as from the test record.

The greatest value of interest inventories is in indicating whether a given occupation is congenial and pleasant, provided the individual has the ability required for that occupation.

It must be remembered that there is no single formula which will reveal the ideal occupation for the individual. Nevertheless, the wise use of test results by the employee will aid him in more successfully placing the employees in his organization. Although the use of interest profiles in the placement of employees is only one indication of the suitability of the individual for an occupation, it is an important one.

REVIEW OF LITERATURE

In Principles of Personnel Testing Lawshe (16) states:

> Human beings differ. They differ in their physical attributes, their abilities, their temperaments, their interests, and their attitudes. Because they differ in these personality characteristics, they naturally differ in the ways in which they perform their jobs. Some employees in a given group are better than others in spite of how good or how poor the group is as a whole. How great are these differences; how are they distributed; and what has personnel testing to contribute to the employment or upgrading situation in the light of these facts?

He (Lawshe) feels that personnel tests are genuinely useful managerial tools, but their adoption in business and industry has been retarded somewhat by the lack of trained personnel to administer testing programs and by the lack of information about tests on the part of those in managerial capacities. He has written his book to be of use to management in learning what can legitimately be expected of tests and in guiding the establishment of the policy framework within which a testing program must function. The book is also designed to be useful in training those who will eventually administer testing programs.

Calhoon (2) included in his writings a treatment of the problems involved in the administration of personnel testing programs.

The central theme of the article by Shellow (20) is that vocational planning is a process of growth. She states:

> The goal of vocational guidance should not be to give a specific answer to a groping client. Our goal is rather to train the individual in self-evaluation and in realistically relating himself to the economic world. Vocational guidance is a learning process. The client learns to approach his problems through the understanding of himself. It is a process of integration and drawing together of the several aspects of

> the personality into a related pattern directed to a goal in line with this pattern.

The use of the interest inventory in the counseling interview is the concern of DiMichael (5); he feels that the early introduction of the inventory in the interview is hardly justified on the basis of securing rapport. He cautions that the interest scores are really complex data to present to the client, and difficult to interpret. The early introduction of test scores tends to fixate the client's attention to psychological test scores rather than to a comprehensive self-consideration. It is suggested that ability test results be discussed before the interest scores, or preferably both of them together. The author stresses that:

> Interests are complex facts and not the simple entities with which the average person regards them. The client's interest patterns and "level of aspiration" may show discrepancies with his abilities. To explain these differences many leads must be obtained from the client's interviewing content. The leads furnished by the client are also to be used to help him acquire greater self-insight. Cues provided by the client make good springboards to a more satisfying interpretation of the results of the inventory.

It is also the feeling of DiMichael that a number of special counseling problems are met in the presentation of interest inventory scores. Special techniques should be used in interpreting results when abilities are higher than the level of aspiration, as well as when interests are unrealistically high. It is suggested that the more non-directive techniques of reflection and clarification and feeling content be used in working through such problems. Finally, there are good possibilities in the counseling interview for using interest scores as avenues of better self-understanding of personality characteristics by the client.

A study was made by Cottle (3) to consider the relationships found to exist among the thirty-four subtests comprising the Minnesota Multiphasic Inventory, the Strong Vocational Interest Scale for Men, the Kuder Preference Record, and the Bell Adjustment. His table of intercorrelations shows a marked trend toward significant relationships except when personality inventories and interest inventories are compared.

The use of interest inventories was reported in a recent article by Failor and Mahler (8). The findings were given by one supervisor of placement who checked the work of his staff members. He selected twenty consecutive cases completed by each of the eight counselors on his staff and on a work sheet he listed the tests that had been used by each counselor. The results, as shown below, indicated that the Kuder Preference Record was used more than fifty per-cent of the time.

	CASES								
Interest Tests	1	2	3	4	5	6	7	8	Totals
Kuder Preference Record	12	13	18	16	11	12	9	6	97
Occupational Interest Inventory	1	8	1	5	3	8	10	5	41
Primary Business Interest	-	1	3	3	-	-	1	-	8
Strong Vocational Inventory	-	7	8	9	8	3	-	1	36
									180

Much of the current literature is designed to further develop the usefulness of interest inventories. MacPhail (18) presents five interest patterns on the Lee-Thorpe Occupational Interest Inventory. These patterns were for the following occupations: Professional and Managerial: Clerical and Sales, Nature Occupations, Manual Occupations, Students: Service, and Skilled and Semiskilled.

Frandson (10) evaluates and amends Wiener's (21) coding of Kuder Preference Record Profiles:

> Adapting Hathaway's method of coding MMPI profiles to the Kuder Preference Record, Wiener has suggested a convenient device for using more effectively in counseling the empirical data being accumulated on numerous occupational groups. According to Wiener's procedure, the Kuder scales on which an occupational group scores at the 75th percentile or higher are listed (using the Kuder scale numbers from 0 to 9) to the left of a hyphen in descending order, and the scales on which the group scores below or up to the 25th percentile are listed to the right of the hyphen in ascending order. When no percentile score exceeds 75 or falls below 25, this fact is indicated by an X.

In recommending an amendment to this coding system he (Frandsen) says:

> When the norm profiles from Kuder's Manual are re-coded, using the 65th and 35th percentiles as approximate points of significant deviation from the mean, much better discrimination among logically different occupations results. As examples of this better discrimination, occupations . . . having been coded X-X by Wiener may be re-coded as follows: . . . Carpenters, 15-64; Engineers (all), 32-8; Photographers, 5-2; Secondary School Teachers, 8-14.

Brown (1) found that all scale ratings did not always seem to give a true picture of individual interests. He felt that the client might throw some light on such discrepant scores that might be found, and suggests that the counselee's evaluation of Kuder results may be made a part of the interviewer's observation summary. The counselee would be given the opportunity to state whether he feels his scores on the Kuder inventory accurately depict his interests. He may evaluate them higher or lower if he feels they give a distorted picture. The author sees the need for investigation to determine whether client evaluations improve the inventory's ability to detect interests. On the positive side, he found that confidence in the Kuder ratings, as a whole, was of high statistical significance. The technique of interrogation was of

definitive informational value for advisers; it seemed to help clarify the client's thinking in regard to his vocational interests and promoted more active counselee participation in the advisement process.

In a study made by MacPhail (17) it was found that the mean scores made by 1,024 male veterans on Form BB of the Kuder Preference Record deviated from the publisher's norms in several areas by amounts making the data of interest to those using this record, particularly with veterans.

> For the Mechanical, Computational, and Literary parts the differences in the mean scores were of no consequence, i.e., may be considered as having no statistical significance. On the other six parts the differences were definitely significant. On three parts (Scientific, Persuasive, Social Service) the veterans' means were significantly lower than the publisher's and on three other parts (Artistic, Musical, Clerical) they were significantly higher.

A table of new norms was included for the six areas found to be significantly different from the publisher's norms.

In another study made by Hanna and Barnette (11) it was found that when a comparison was made between the published norms and those of 780 male veterans at the Vocational Service Center of the New York YMCA, important shifts are to be noted for six of the nine separate scales. It will be noted, however, that these differences do not correspond to those of the findings of MacPhail (17). VSC norms are generally lower for all score levels for the Mechanical, Computational, and Scientific; norms are higher for the Persuasive, Literary, and Musical; but showed little shift in Artistic, Social Service, and Clerical. A complete table of norms for this study was included.

Another advocate of establishing new sets of norms for the Kuder Preference Record is Limicke (7) who reports on the results of testing a group of 471 sales trainees. He concludes:

It is present practice that an individual seeking vocational advisement be tested and his test results measured against norms established among persons who are already successful in various occupations. This procedure has certain limitations in dealing with interest patterns, as different norms might have been obtained if the individuals had been tested at the outset of their careers. There is, therefore, a strong indication of a need for norms for individuals who are taking special training and for following up these individuals after training.

The present study is an attempt to supply additional data on the actual use of the Kuder Preference Record.

THE PROBLEM

In recent years it has been clearly demonstrated that personnel tests can be effective managerial tools in placing the right man on the right job. Because human beings differ in their physical attributes it is only natural to expect that they will also differ in the kind of work they are able to do and want to do. It is the task of personnel testing to help determine how great these differences are and how they are distributed.

In addition to measuring and classifying an individual according to his ability and aptitudes for a job, it is also important to consider his interests.

Purpose of the study

The major purpose of this study is to further develop the usefulness of the Kuder Preference Record in occupational selection and job placement at the Utah Oil Refining Company. It was hoped that a typical profile could be plotted for each of the groups selected, providing those responsible for placement of new workers a more definite pattern by which to select personnel for specific jobs in the company.

Hypothesis

It is the hypothesis of this study that people in a particular occupation have roughly similar interests. It is assumed that a person having the same pattern will find satisfaction in that field, but that one having dissimilar interests will not likely be happy in it.

COLLECTION OF DATA

Source of Data

Since early in 1951 all applicants for employment at the Utah Oil Refining Company, Salt Lake City, Utah, have been given a battery of personnel tests to aid in placing them in jobs where they would perform most effectively, both for their own satisfaction and in the best interests of the Company. The tests in use include an intelligence test, a personality inventory, and an interest inventory. They are in order: The Wonderlic Personnel Test, The Adams Personal Audit, and The Kuder Preference Record.

The Industrial Relations Division made available for this study the completed Kuder Preference Records of all employees who had taken the battery of employment tests since their introduction to the hiring process. Only interest profiles of subjects actually hired by the Utah Oil Refining Company were considered for use in the present study.

From the general set of Kuder Records four groups of employees were selected; two "office" - accountants and female clerical workers, and two "plant" - refinery laborers and truck drivers. It was thought that an analysis of these occupational groups and the resulting information would be of interest and value to the Utah Oil Refining Company.

Accountants

Kuder results of twenty-three accountants were used. These employees are all male and range in age from 24 to 36; the median age is 30.

Female Clerical Workers

The group of thirty-eight female clerical workers included the following: 10 key punch operators, 10 stenographers or secretaries, 7 junior clerks, 3 statisticians, 1 statistical typist, 3 comptometer operators, 2 general clerical workers, and 2 general typists. The age range for these female workers is 18 to 32, with a median age of 21.

Refinery Laborers

Records of thirty-four refinery laborers were used. The age range is from 18 to 34 and the median age is 26 for this group. All workers in the refinery are hired into a labor pool; from there they are assigned to the various duties in the refinery. The employees in this labor pool include all refinery workers with the exception of technical workers, i.e., engineers, etc.

Truck Drivers

The age range for the twenty-one truck drivers studied is from 23 to 40; the median age is 27. These workers include the men who drive the heavy duty trucks for the company. They are hired directly and usually have had previous driving experience with trucking companies.

Research Tool

The test used in this specific research was the Kuder Preference Record, Vocational - Form B, published by Science Research Associates, Chicago, Illinois.

The Kuder Preference Record consists of 168 items. Each item consists of short descriptions of three activities. The respondent is asked to indicate which of the three activities he would ordinarily like most and which he would ordinarily like least. It is intended for use in pointing out vocations with which a person may not be

familiar but which involve activities of the type for which he has expressed preference. It is also to be used in checking on whether a person's choice of an occupation is consistent with the type of thing he ordinarily prefers to do (13).

Scores are obtained in the following nine general areas: (1) mechanical, (2) computational, (3) scientific, (4) persuasive, (5) artistic, (6) literary, (7) musical, (8) social service, and (9) clerical.

Norms

The norms used in this study were those developed by Kuder (14) obtained from 2667 adult men engaged in occupations, with each major occupational group weighted in proportion to its occurrence in the general population, and from 1429 adult women engaged in occupations, with each major occupational group weighted in proportion to its occurrence in the general population.

Although new norms for this test have been made available, as noted in the review of literature, it was felt that they would not be applicable to this study and this group since they were established on groups of veterans of World War II, and not from the general population.

Validity

Kuder (13) states that:

> With respect to the validity of the scales, evidence is reported in the manual concerning the relation of scores to (1) occupation entered, (2) choice of curricula and occupations, (3) achievement, (4) general and special abilities, and (5) job satisfaction. In almost all the occupations studied, significant differences from the base group have been found on one or more scales.

In one respect, for example, the results indicate in general that the names assigned to the various scales are appropriate in terms of

the type of occupation entered as well as in terms of the activities for which the scale is scored (14).

Reliability

The reliabilities obtained for the nine scales from various groups including college students, high school students, eighth grade students, and employed adults, are listed in the manual (14). The reliabilities for the different scales range from .80 to .98. The median of the entire table is .91.

PROCEDURE

Selection of sample

The first step was to select the occupational groups to be used in the study. From the general population of employees at the Utah Oil Refining Company, the four groups chosen were those with the largest number of Kuder Preference Records available. These include two groups of "office" workers - accountants and female clerical workers - and two groups of "plant" workers - refinery laborers and truck drivers.

It will be noted that eight different jobs are represented in the group of female clerical workers because any one job designation in this group did not include enough cases to be meaningful.

The relatively small numbers of individuals in each sample can be explained by the fact that the turn-over in the company is fairly low and there are not a large number of applicants.

Mean scores

From the raw score on the individual answer pads mean scores were calculated on each of the nine general interest areas for each of the four occupations.

Profiles

The mean scores formed the basis for plotting a profile for each of the specified occupations in the nine interest areas. These profiles were plotted on the Adult Profile Sheet for Form B of the Kuder Preference Record; separate norms are available for men and women.

Coding of interests

Using Frandsen's (10) suggested revision of Wiener's (21) coding of Kuder Preference Record profiles, a code for each of the four occupational groups of this study was determined. It was found that for each of these occupations there was a similar occupation listed in the Kuder manuals (14, 15). Using the mean scores found for the Kuder groups, each group was coded and the code compared to the related occupation of the Utah Oil group; see page 8 for coding details.

Correlations

Using the Rho formula, $P = 1 - \frac{6\Sigma D^2}{N(N^2-1)}$, correlations were made to determine the correlation between the individual scores and the mean performance of the group; then the median correlation score was found. The purpose for making these correlations was to show how alike or how unlike the members of each group are, to determine whether or not the subjects of this study in a particular occupation do actually have similar interests. Tables 3 and 4 in the appendix are tabulations of these correlations.

Correlations were also made between the occupational groups to show how each group relates to each of the other groups; Table 2 lists these correlations.

Hobby interests

During the course of the research it was noted that interest in musical and artistic areas varied more for individuals than for groups. That is, although the correlation between plant and office personnel is generally low, interest in musical or artistic categories may be extremely high or very low for individuals in either of these general personnel divisions. It was felt that high or low interest in either

musical or artistic is very possibly determined by special aptitudes or hobby interests not related to a person's occupation. Therefore, it was felt that it would be of additional value to this study to consider these two interest areas as "hobby" interests and to calculate the Rho correlations for each of the above groups eliminating musical and artistic areas from consideration, as well as using all nine interest areas.

RESULTS

Mean Scores

The mean scores for the interest areas, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical, are listed in Table 1 for the four occupational groups of this study.

Table 1. Mean scores of four occupational groups.

Occupation	No. of Cases	SCALES								
		1 MEC	2 COM	3 SCI	4 PER	5 ART	6 LIT	7 MUS	8 SOC	9 CLE
Accountants	23	74	51	66	84	41	49	19	71	69
Female Clerical	38	45	33	49	66	55	50	27	84	67
Refinery Laborers	34	95	34	74	66	49	40	13	73	49
Truck Drivers	21	87	35	62	70	50	43	17	75	50

Accountants

In Figure 1, the profile chart for accountants, it will be noted that the highest interest areas for this group are computational and clerical, as may be anticipated. Cronbach (4) states that Kuder profiles are often "interpreted on their face value," and such is the case in this instance. The coding for this group is found to be 2947-X; upon coding the Accountants and Auditors using Kuder norms (14) it is noted that the code for that group is 296-51, closely related

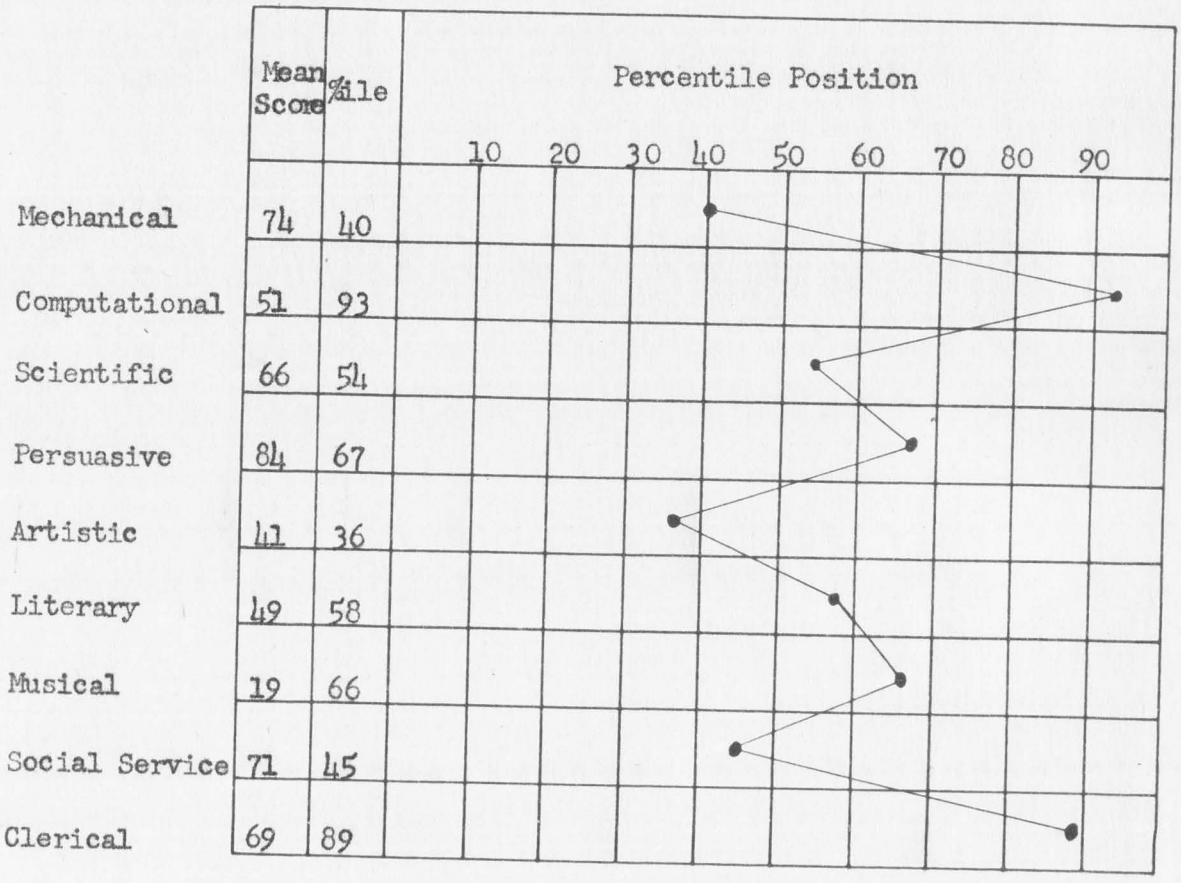

Figure 1. Group profile based upon mean performance of twenty-three accountants on Kuder Preference Record.

to the Utah Oil group. It will also be noted that although areas 5 and 1 for the Utah Oil group are not below the 35th percentile they are the two lowest areas of interest for this group of accountants. The correlation between the Utah Oil accountants and the Kuder accountants is notably high: R= .92.

When comparing each individual of the group with the mean performance of the group it is found that the median score is .532, when using all nine interest areas. However, when the so called "hobby" interests are eliminated it is found that the median correlation is .645.

It is notable that high correlations are found for Utah Oil accountants when comparing them with their own mean performance, as well as with Kuder's accountants and auditors. It is thought that one possible explanation for these high correlations concerns the training and ability necessary for this type of occupation. Rather than being an occupation into which workers may drift, accounting is a specialized type of work for which training and ability are requirements. It is likely that those who do not find interest in this type of work drop out before they reach the point of qualifying for an accountant's position.

Female Clerical Workers

The profile chart for the female clerical workers is found in Figure 2. The high interests for this group are musical and persuasive; the low interest is mechanical. This group differs decidedly from the General Office Clerks for which mean scores were found by Kuder (14); the correlation between these two groups is -.68. Even when the correlation between the mean score for the Utah Oil group and the mean

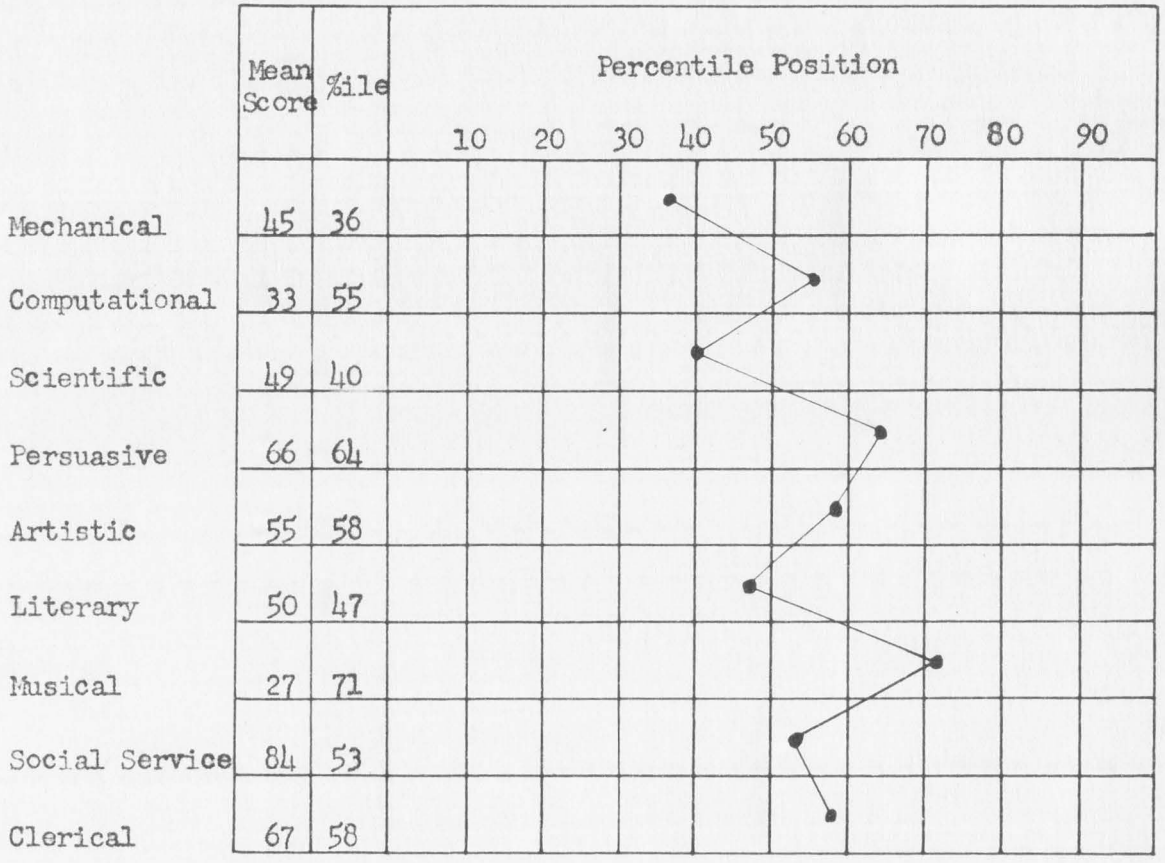

Figure 2. Group profile based upon mean performance of thirty-eight female clerical workers on Kuder Preference Record.

for Kuder's General Office Clerks, Statistical Clerks, Stenographers and Typists, and Machine Operators was found the correlation was still only -.68.

This lack of similarity is reflected in the coding. For the Utah Oil group it is 74-1 and for the Kuder group it is 2-X.

The median correlation of .378 is found to exist between the individuals in the group and the mean performance of the group when all nine factors are included. The correlation drops slightly, to .333, when the "hobby" interests are withdrawn. This low correlation may be explained by the fact that so many different jobs are included in this group. It is very likely that the vocational interests of a stenographer and of a comptometer operator or key punch operator are very different; this may account for the low correlation found for this group of female employees.

Refinery Laborers

It will be noted in Table 3 that high interest areas for the Utah Oil group of refinery laborers are mechanical and scientific. It is notable that the coding for this group, 13-6, compares closely to the coding for Kuder's (15) Oil Company Supervisors in Refinery, 31-X. The correlation between these two groups is .89.

The median correlation between the individual scores and the mean score for the group of refinery laborers is .535, using all nine categories. It is slightly higher, however, when the "hobby" interests are excluded; it is then found to be .59.

Truck Drivers

The high interest of the Utah Oil truck drivers, as illustrated in Figure 4, is artistic. The second high interest is musical, and

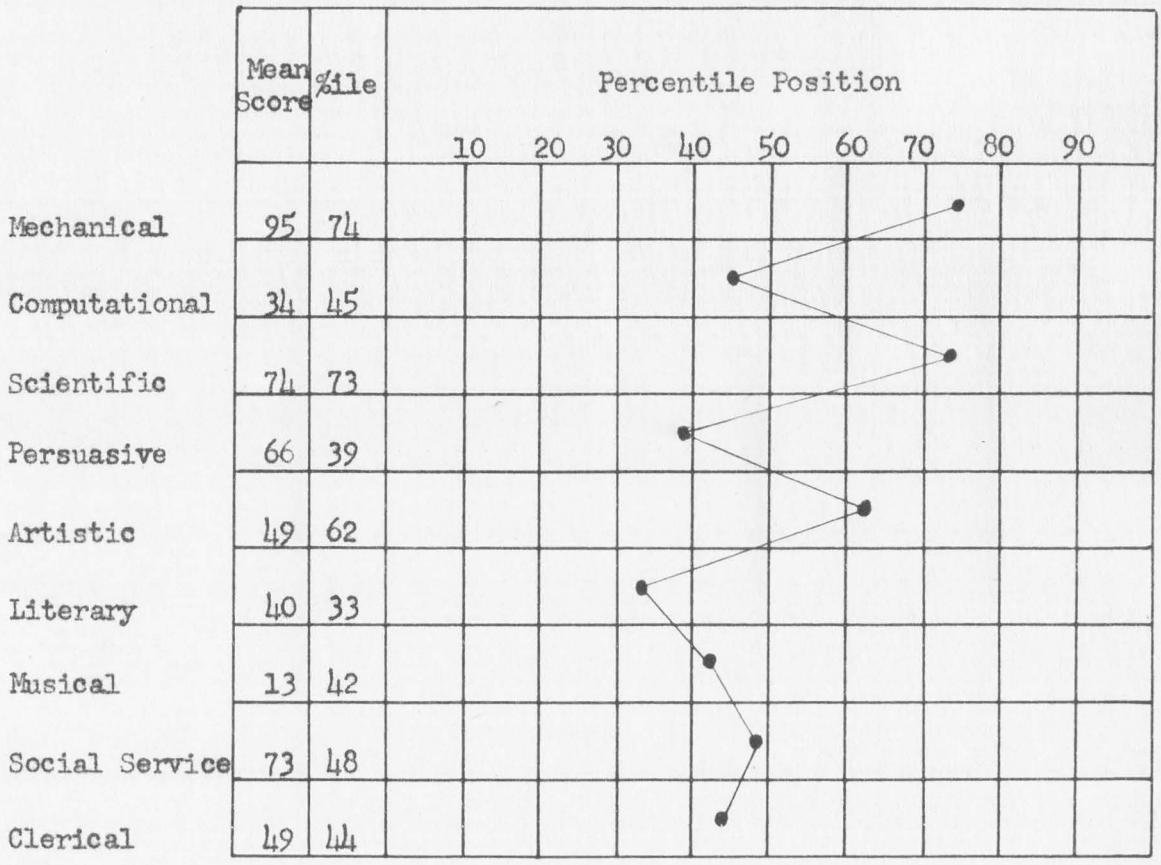

Figure 3. Group profile based upon mean performance of thirty-four refinery laborers on Kuder Preference Record.

rating only third, at only the 59th percentile, is the mechanical interest; at face value one might expect a truck driver to have a high interest in mechanical areas. The code for this group is 5-X; for Kuder's (15) Truck Drivers and Chauffeurs it is X-X. A correlation of .50 is found to exist between these two groups.

It is assumed that truck drivers are a fairly diversified group of men when it is noted that a median correlation of .12 is found between the individuals of the group and the mean performance of the group when all nine interest areas are used. However, when the "hobby" groups are excluded the median correlation is found to be somewhat higher: .345. It appears that truck drivers do not choose their work to correspond to their chief interests, but that they pursue their major interests outside their jobs. It is also interesting to see another indication of this difference among truck drivers; although the mean score for artistic interest is highest for this group the range of scores is from the 99th percentile to the 1st percentile.

Group correlations

Calculations have been made to show the correlation between each of the four occupational groups and each of the other groups in this study. The results are reported in Table 2 and include correlations including all nine areas as well as excluding the so-called "hobby" interests.

It will be seen that the correlations are higher between the occupations in a general classification - accountants and female clerical workers; refinery laborers and truck drivers - than when office employees are compared with plant workers. It is also notable that when the "hobby" interests are excluded the correlations are higher.

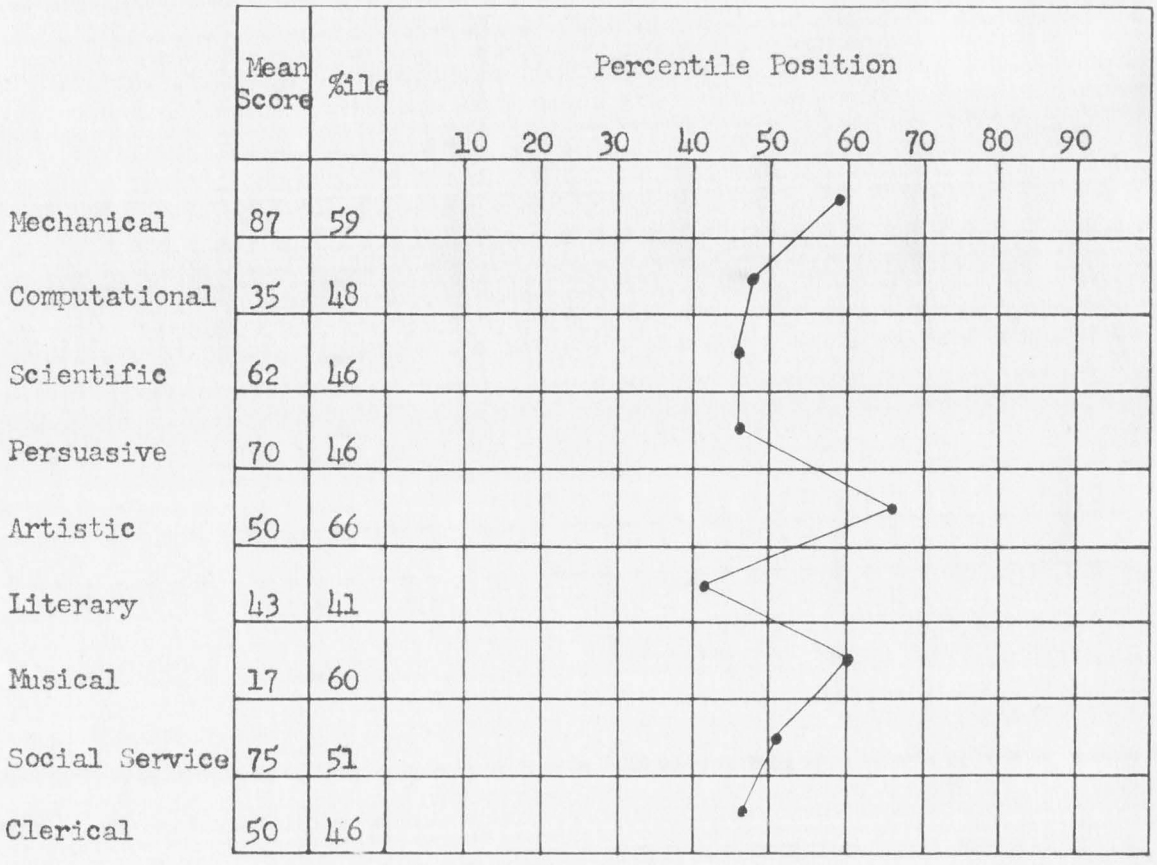

Figure 4. Group profile based upon mean performance of twenty-one truck drivers on Kuder Preference Record.

Table 2. Rho correlations for each occupational group as compared with each of the other three groups, and with themselves.

OCCUPATION	ACCOUNT-ANTS	FEMALE CLERICAL	REFINERY LABORERS	TRUCK DRIVERS
ACCOUNT-ANTS	.53 .645	.40	-.49	-.63
FEMALE CLERICAL	.57	.378 .333	-.51	.18
REFINERY LABORERS	-.93	-.93	.535 .59	.50
TRUCK DRIVERS	-.49	-.66	.77	.12 .345

The figures in the upper right hand corner are correlations including all nine areas. The figures in the lower left corner are correlations excluding the musical and artistic scores.

Figure 5 shows the profile pattern of each occupational group, all plotted on the same chart in order that their relationship to each other may be more easily visualized. It is a combination of Figures 1, 2, 3, and 4.

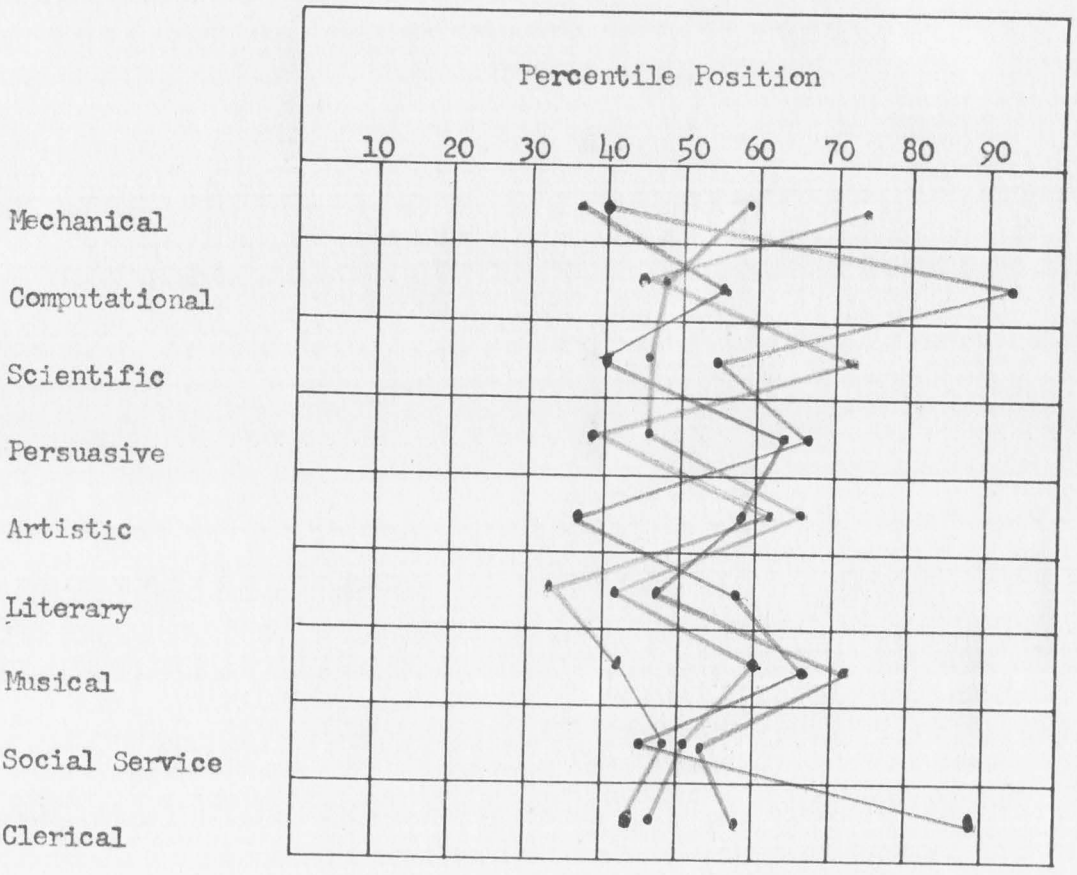

Figure 5. Profiles for four occupational groups based upon the mean performance of each group on the Kuder Preference Record.

Accountants ———— Refinery Laborers ——
Female Clerical —— Truck Drivers ————

CONCLUSIONS

From the data on the Kuder Preference Records obtained from four groups of employees - accountants, female clerical workers, refinery laborers, and truck drivers - of the Utah Oil Refining Company, the following conclusions have been made:

1. The accountants in the Utah Oil group are highly correlated with the group of accountants whose norms have been used in the Kuder manual (15). These employees are also correlated positively with each other in their interests.

2. The female clerical workers of this study differ greatly from the female clerical workers on whom the Kuder (14) norms were based. The Utah Oil clerical workers are also unlike each other; this is probably because too many different jobs were included in this general occupational group. Another factor may be that unequal numbers of these various jobs were used in compiling figures for clerical workers.

3. The Utah Oil group of refinery laborers are similar in their interests to Kuder's (15) Oil Company Supervisors in Refinery. They are generally like each other in their interests.

4. Truck drivers at the Utah Oil Company seem to be unrelated to each other in their interests, although as a group they are quite like other truck drivers (15).

5. When comparing one occupational group with another it is noticed that "plant" workers are more alike than are "office" workers, and

there is practically no correlation, or a negative correlation, between "plant" and "office" workers.

It is further concluded, from the data obtained in this study, that Kuder profiles cannot always be "interpreted on their face value." Although the groups of accountants and refinery laborers showed high interest in the areas where it would be expected they would show interest, clerical workers and truck drivers did not. It would be expected, associating the type of work interest with the name of the occupation, that clerical workers would show marked interest in clerical areas. One might presume that truck drivers would show interest in mechanical work. However, in this instance neither proved to be true.

Some limitations to this study are recognized: to be more meaningful the number of subjects for each sample should be larger. To produce more definite data for the group of female clerical workers such a large number of job classifications should not have been included in the one group.

As a managerial tool to aid in the placement of applicants for work, the Kuder Preference Record has value. It is not designed to be used as the sole determiner in job placement, but when used as one of a battery of personnel placement tests it has definite value.

The data in this study were not intended to be used as a perfect pattern by which employees for these four occupations can be chosen, but rather they show the correlation between Utah Oil Refining Company employees and similar groups for which norms have been established.

When examining an interest profile it might be advisable for a personnel manager to note the position of the "hobby" interests, artistic and musical. Where the work involved does not specifically

call for interest in either or both of these areas but the interest indicated in one or both of these areas is high, it would be well to make note of the next higher scores to help indicate more clearly the vocational interests of the subject.

Satisfaction with a job and success on the job cannot be measured or predicted by Kuder Preference Record scores. If this were possible the Kuder would be an even more valuable tool. It is felt, however, that the Kuder Preference Record does perform the task it purports to perform: it points out vocations with which a person may not be familiar but which involve activities of the type for which he has expressed preference, and checks on whether a person's choice of an occupation is consistent with the type of thing he ordinarily prefers to do.

SUMMARY

If it is true that people in a particular occupation have roughly similar interests, then a person having the same pattern of interests should expect to find satisfaction in that field. Likewise, a person having dissimilar interests would not be expected to be happy in that type of work. The Kuder Preference Record is a valuable tool to aid in the placement of employees and is most effectively used as part of a battery of personnel tests.

The data for this study were gathered from the personnel records of the Utah Oil Refining Company and were taken from the Kuder scores of four groups of employees: accountants, female clerical workers, refinery laborers, and truck drivers.

When comparing individual scores with the mean performance of the group to which the individuals belong, it was found that there is a notably positive correlation for accountants (.53) and for refinery laborers (.535). However, for the other two groups a relatively low correlation existed, female clerical workers (.378) and truck drivers (.12). With the exception of female clerical workers, it was found that when the two interest areas which may be considered "hobby" interests, artistic and musical, were eliminated the correlations were higher, showing the individuals to be more like the other members of their group.

Correlations between the groups of this study and similar occupational groups for which Kuder has developed norms revealed that there

is a high positive correlation for accountants (.92) and for refinery laborers (.89), that for truck drivers there is a correlation of .50. However, female clerical workers are markedly different in their interests from the Kuder group; this correlation is -.68.

Plant workers, refinery laborers and truck drivers, are more like each other in their interests than are office workers, accountants and female clerical workers. It is also decidedly shown that plant workers have interests very different from those of office workers, with the possible exception of their "hobby" interests which do not always affect their vocational choices and may be similar.

As a placement tool it is suggested that a Kuder interest profile be used with consideration for its limitations. The information it presents is important in selecting satisfactory employees but should not be expected to go beyond its intended purpose, which is to point out vocations which involve activities of the type for which the subject has expressed preference.

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A P P E N D I X

Table 3. Distribution of correlations for each of four occupational groups between individual scores and the mean performance of the group on the Kuder Preference Record, using all nine interest areas.

Rho	Frequency			
	Account-ants	Female Clerical	Refinery Laborers	Truck Drivers
1.00	0	0	0	0
.90 .99	1	0	1	0
.80 .89	4	2	5	2
.70 .79	2	3	4	1
.60 .69	2	3	4	1
.50 .59	4	5	5	2
.40 .49	2	5	3	2
.30 .39	2	6	1	1
.20 .29	2	2	3	0
.10 .19	1	3	2	2
.01 .09	1	2	0	3
00	0	0	2	0
-.01 -.09	0	0	0	0
-.10 -.19	0	1	0	0
-.20 -.29	0	1	0	0
-.30 -.39	0	0	0	0
-.40 -.49	0	1	0	0
-.50 -.59	0	1	0	1
-.60 -.69	0	2	1	3
-.70 -.79	0	1	1	0
-.80 -.89	1	0	1	2
-.90 -.99	1	0	1	1
-1.00				
Number	23	38	34	21
Median	.53	.378	.535	.12
Quartile 1	.28	.11	.21	-.67
Quartile 3	.71	.57	.73	.53

Table 4. Distribution of correlations for each of four occupational groups between individual scores and the mean performance of the group on the Kuder Preference Record, excluding artistic and musical interests.

Rho		Frequency			
		Account-ants	Female Clerical	Refinery Laborers	Truck Drivers
1.00		0	0	0	0
.90	.99	1	1	2	0
.80	.89	3	3	5	3
.70	.79	5	2	6	2
.60	.69	5	1	4	3
.50	.59	2	3	3	1
.40	.49	1	1	4	1
.30	.39	2	13	0	1
.20	.29	1	1	1	2
.10	.19	1	1	3	1
.01	.09	0	2	2	1
00		0	2	0	1
-.01	-.09	0	0	0	0
-.10	-.19	0	0	0	0
-.20	-.29	0	0	0	0
-.30	-.39	0	1	0	1
-.40	-.49	0	3	0	1
-.50	-.59	0	0	0	0
-.60	-.69	1	0	1	0
-.70	-.79	1	1	0	1
-.80	-.89	0	2	1	1
-.90	-.99	0	1	2	1
-1.00		0	0	0	0
Number		23	38	34	21
Median		.645	.333	.59	.345
Quartile 1		.28	-.075	.18	-.025
Quartile 3		.76	.51	.77	.69